

**Bonneville Power Administration  
Fish and Wildlife Program FY99 Proposal**

**Section 1. General administrative information**

## **Final Design For Fish Passage Improvements At Lower Eldorado Falls**

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**Bonneville project number, if an ongoing project**    9607704

**Business name of agency, institution or organization requesting funding**

NEZ PERCE TRIBAL FISHERIES/WATERSHED MANAGEMENT PROGRAM

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**Business acronym (if appropriate)**    NPT

**Proposal contact person or principal investigator:**

**Name**                      Ira Jones  
**Mailing Address**    P.O. Box 365  
**City, ST Zip**            Lapwai, ID 83540  
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**Subcontractors.**

<b>Organization</b>	<b>Mailing Address</b>	<b>City, ST Zip</b>	<b>Contact Name</b>
Clearwater National Forest	Rt. 2 Box 191	Kamiah, ID 83536	Dennis Talbert
Consulting Engineer	31 Forest Lane	Port Ludlow, WA 98365	John F. Orsborn
Consulting Engineer	125 East 3rd	Moscow, ID 83843	Jeff Loomis
Consulting Engineer	5621 Bobtail Roaf	Libby, MT 59923	Marth J. Wegner

**NPPC Program Measure Number(s) which this project addresses.**

SECTION 7.6 HABITAT GOALS, POLICIES AND OBJECTIVES; SECTION 7.7 - COORDINATION OF WATERSHED ACTIVITIES; SECTION 7.8 - IMPLEMENT STATE, FEDERAL, AND TRIBAL HABITAT IMPROVEMENTS.

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**NMFS Biological Opinion Number(s) which this project addresses.**

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A LEVEL ONE CONSOLTAION IS CURRENTLY BEING PERFORMED AT THIS TIME FOR THE CLEARWATER SUBBASIN AND WILL BE AVAILABLE AT A LATER DATE.

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### Other planning document references.

Clearwater National Forest and Nez Perce Tribe, 1997. Challenge Cost-Share Agreement between the Clearwater National Forest and the Nez Perce Tribe. Lapwai, ID.

Columbia Basin Fish and Wildlife Authority, 1997. Integrated Watershed Projects: The Process and Criteria for Selecting Watershed Projects for the Columbia Basin Fish and Wildlife Program.

Columbia River Fish and Wildlife Program, 1994. Columbia River Basin Fish and Wildlife Prog.

CRITFC, 1995. WY-KAN-USH-MI WA-KISH-WIT, Spirit of the Salmon. Vol. I and II Portland, OR.

Nez Perce Tribe and Idaho Dept. of Fish and Game, 1990. Clearwater River Subbasin Salmon and Steelhead Production Plan. Northwest Power Planning Council and CBFWA. Bosie, ID.

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### Subbasin.

CLEARWATER SUBBASIN, Lolo Watershed

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### Short description.

FINAL DESIGN OF LOWER ELDORADO FALLS TO IMPROVE FISH PASSAGE, WORKING WITHIN AN OVERALL WATERSHED APPROACH, IS THE MAIN GOAL OF THIS PROJECT. THE PROJECT WILL COMPLETE ALL PRE-CONSTRUCTION ACTIVITIES.

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## Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish	*	Construction	X	Watershed
*	Resident fish		O & M		Biodiversity/genetics
	Wildlife		Production		Population dynamics
	Oceans/estuaries	X	Research	*	Ecosystems
	Climate		Monitoring/eval.		Flow/survival
	Other	*	Resource mgmt		Fish disease

_____*	Planning/admin.	_____	Supplementation
_____	Enforcement	_____	Wildlife habitat en-
_____	Acquisitions	_____	hancement/restoration

**Other keywords.**

FISH PASSAGE IMPROVEMENTS

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### **Section 3. Relationships to other Bonneville projects**

<b>Project #</b>	<b>Project title/description</b>	<b>Nature of relationship</b>
83350	Nez Perce Tribal Hatchery	Lower Eldorado Falls fish passage improvements for anadromous fish outplants to spawning and rearing habitat.

### **Section 4. Objectives, tasks and schedules**

#### ***Objectives and tasks***

<b>Obj 1,2,3</b>	<b>Objective</b>	<b>Task a,b,c</b>	<b>Task</b>
1	Complete Full Assessment and design of Lower Eldorado Falls fish passage improvements and all pre-construction activities.	a	Design fish passage options.
		b	Choose best alternative.
		c	Complete Cost and Schedule Analysis.
		d	Final Approval and Stamping of design by a licensed professional engineer (P.E.).
		e	Obtain required construction permits for 1999.
		f	Finalize all preliminary Construction Plans.

**Objective schedules and costs**

<b>Objective #</b>	<b>Start Date mm/yyyy</b>	<b>End Date mm/yyyy</b>	<b>Cost %</b>
1	4/1999	7/1999	99.99%
			TOTAL 99.99%

**Schedule constraints.**

The tentative schedules for this project proposal may change due to the availability of the consulting engineers and to weather conditions, if further surveying is found needed. Any in-stream work will be constrained by the fish window for spawning.

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**Completion date.**

This design project will be completed in 1999. Construction is tentatively scheduled for the 1999 and 2000 field seasons. Monitoring and evaluation (M & E) and operation and maintenance (O & M) will be ongoing yearly after construction.

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**Section 5. Budget*****FY99 budget by line item***

<b>Item</b>	<b>Note</b>	<b>FY99</b>
Personnel		\$5,173
Fringe benefits		\$1,811
Supplies, materials, non-expendable property		\$ 480
Operations & maintenance		
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		
PIT tags	# of tags:	
Travel		\$ 792
Indirect costs		\$2,561
Subcontracts		\$6,408
Other	VEHICLE COSTS	\$ 577
<b>TOTAL</b>		<b>\$17,802</b>

### ***Outyear costs***

<b>Outyear costs</b>	<b>FY2000</b>	<b>FY01</b>	<b>FY02</b>	<b>FY03</b>
Total budget	\$45,000	\$55,000	\$1,000	\$1,200
O&M as % of total	5.00%	5.00%	99.99%	99.99%

## **Section 6. Abstract**

Completing fish passage improvements at Lower Eldorado Falls within the Lolo Creek Watershed is the goal of this project. This project will work within an overall watershed approach for the Clearwater Sub-basin, by completing a final design for improvements at the falls to allow anadromous fish passage to prime spawning and rearing habitat. This will benefit and increase anadromous fish habitat, therefore, assist in enlarging their populations, and work towards the goal and objectives of the Columbia River Anadromous Fish Restoration Plan of the Tribes.

The design approach will be to modify the falls with as little impact to the environment, using as much native materials as possible, allowing successful fish passage. The plan will take into account anadromous fish (salmon and steelhead) capabilities, designing for required pool depth to jump height ratios, pool lengths, pool volumes, standing waves and for the streams velocities, flows, and characteristics. The design will also take into account flows at different times of the year that both fall and spring returning fish return to this area.

The outcome of the project will be a system that allows for clear passage of anadromous fish to 12 miles of prime spawning and rearing habitat. The design will be done in year 1998, with tentative construction finished by 2001.

Anadromous fish, upon completion of the project, will be observed for successful fish passage. The amount of spawning redds will be monitored and evaluated for increased populations. The monitoring observed and evaluated information will be stated in yearly reports produced by the program and distributed to all parties involved or interested.

## **Section 7. Project description**

### **a. Technical and/or scientific background.**

The ultimate goal of this project is to increase the productive capability of the Eldorado Drainage for anadromous fish by working within an overall watershed approach for the Clearwater Sub-basin, as outlined in the NPPC Fish and Wildlife Program and the Salmon Recovery Plan of the Tribes.

Eldorado Creek drainage is contained within the Clearwater Sub-basin of the Lolo Creek Watershed. Eldorado Creek is a 6<sup>th</sup> order tributary of Lolo Creek, an important anadromous fishery. The drainage contains 48 square miles or 30,620 acres. Elevation ranges from 2,850 feet at the Lolo confluence to 5,480 feet at the

headwaters. Main Elorado Creek is 18 miles long. Major tributaries to Eldorado Creek include; Cedar, Fan, Trout, Lunch, Farbit, Dollar, Six-bit, and Austin Creek.

Historically, the game fish community of Eldorado consist of a sympatric population of summer steelhead (B-stock) and westslope cut-throat trout. Spring chinook salmon into Eldorado constituted a new introduction, although chinook are native to the Lolo Creek system. Anadromous and non-anadromous fish stocks have successfully co-existed in the Basin for eons (Vogelsany, Murphy, and Espinosa, 1985).

Since this time, populations of anadromous fish in this drainage have experienced catastrophic changes; mostly associated with hydro-electric development of the Columbia and Snake River systems and a dam built near Lewiston from 1997.

The Eldorado Creek system, including main Eldorado Creek and its eight tributaries, contain great spawning and rearing habitat for anadromous fish species (salmon and steelhead). For this reason, the Clearwater National Forest, Bonneville Power Administration (BPA), and the Nez Perce Tribal Fisheries Program have been attempting to outplant and restore the anadromous fish runs.

Putting fish back into river stream system alone are not enough to restore their populations, they need an open system allowing them to reach spawning and rearing habitat. In 1984, under the auspices of the Northwest Power Planning Council, the Clearwater National Forest and BPA entered into an agreement (project # 84-31) to identify potential enhancement projects for anadromous fish in the Columbia River Basin. Lower Eldorado Falls complex was provided to be a formidable barrier (Espinosa, Lee, 1991), (Vogelsang, Murphy, Espinosa, 1995). In 1984 Lower Eldorado Falls was modified by the Clearwater National Forest and BPA (Eldorado Creek Barrier Removal Project Number 84-6, Agreement Number DE-A179-84BP-16535, Modification Number MW1) by blasting at four sites within the area, attempting to create a series of pool for fish to jump. The blasting proved to be unsatisfactory for successful fish passage. Thousands of hatchery fish were stocked into Eldorado starting on 1984 and 1985. During the early spring of 1988, adult steelhead were observed jump at the falls, without successful passage (Espinosa, Lee, 1991). In year 1997, Ed Larson (Nez Perce Tribal Fisheries Production Director) and John Orsborn (Professional Engineer) at separate times visited the site and concluded further modifications were necessary for successful fish passage (especially during low flows for fall returning Chinook and Coho Salmon). Their preliminary analysis determined the previous blasting lacked pool depth to jump height ratio, pool volume, vertical jumping pool faces, appropriate standing waves, and exit pool characteristics. These problems will be mitigated for in this project.

The objective for this project (as stated in Section 4) will strive toward meeting all of the goals and objectives found in the Fish Restoration Plan of the Tribes (CRITFC, 1995) by designing successful fish passage improvement plans in Eldorado Creek, to be implemented in 1999-2001. The goals and objectives are stated below:

## **ANADROMOUS FISH RESTORATION PLAN OF THE TRIBES**

### **GOALS**

- Restore anadromous fishes to the rivers and streams that support the historical culture and economic practices of the tribes.
- Emphasize strategies that rely on natural production and healthy river systems to achieve this goal.
- Protect tribal sovereignty and treaty rights.
- Reclaim the anadromous fish resources and the environment on which it depends for future generations.

Putting fish back into river and streams systems alone are not enough to restore their populations, they need a clear passage way to spawning and rearing habitat. Our project will mitigate (in place, in-kind) the problem stated above by creating a design for Lower Eldorado Falls that will successfully allow fish passage and implementing the design.

The project proposal also protects the goal of tribal sovereignty and treaty rights. In the Treaty of 1855, the Nez Perce Tribe ceded much of their aboriginal territory to the United States in exchange for a reservation that was to serve as a permanent homeland. In that treaty, the Nez Perce Tribe reserved certain rights including, “the exclusive right of taking fish in all the streams where running through or bordering said reservations is further secured to said Indians (Nez Perce Treaty, 1855).” According to this, the government has a trust agreement to protect all tribal resources. The proposal will work toward protecting our resources, therefore fulfilling the government’s responsibilities. The project will also allow the tribe to manage our own tribal resources, which will in turn protect our sovereignty and treaty rights. This is called for in the *National Indian Forest Resource Management Act (PL 101-630)*, which provides for the management of forested tribal trust lands (USDA, 1997).

## **ANADROMOUS FISH RESTORATION PLAN OF THE TRIBES**

### **OBJECTIVES**

- Within 7 years, halt the declining trends in salmon, sturgeon, and lamprey populations originating upstream of Bonneville Dam.
- Within 25 years, increase the total adult salmon returns of stocking originating above Bonneville Dam to 4 million annually and in a manner that sustains natural production to support tribal commercial as well as ceremonial and subsistence harvests.
- Within 25 years, increase sturgeon and lamprey populations to naturally sustainable levels that also support tribal harvest abundance in perpetuity.

The first objective states halting declining salmon trends within 7 years. Design of the modifications will be completed in 1999 with construction to be finished in the year 2001. This is within the 7 year objective of the Tribes plan. The results of clear passage to spawning and rearing habitat will be provided by

monitoring and evaluation (M&E) to be performed upon completion of the entire project.

Emmit E. Taylor Jr. of Nez Perce Tribal Fisheries/Watershed Program (Civil Engineer, EIT) has met with Ed Larson and John Orsborn and conducted field observations and a survey of the area. A preliminary design has been completed by John Orsborn for the project. Emmit E. Taylor Jr. is in the process of reviewing Mr. Orsborn's design and designing optional alternatives to determine the best option for the environment and fish. Ira Jones (*Nez Perce Tribal Fisheries/Watershed Program Coordinator*) has coordinated all activities for this project in 1997 and will continue for 1998 and 1999 with Janet Hohle of the *Idaho Soil Conservation Service*.

**b. Proposal objectives.**

**OBJECTIVE 1:** Complete assessment and design of Lower Eldorado Falls Fish passage improvements for construction.

**Product:** The products from this project will be a design at Lower Eldorado Falls, that is agreed upon by all involved agencies, that will impact the environment at a minimum while allowing successful anadromous fish passage at specific times of the year when anadromous fish return. Material and cost schedules will be performed and required permits for construction also obtained. All pre-construction activities will be made.

**c. Rationale and significance to Regional Programs.**

Restoring Lower Eldorado Falls is called for in the objectives and goals of the CRITFC Anadromous Fish Restoration Plan of the Tribes (Volume I) as stated above in Sections 7, Part (a) of this proposal. The objectives if this project will work towards an overall watershed plan to restore the passage way, therefore, increasing anadromous and resident fish and wildlife habitat, assisting in enlarging their populations, and in turn protecting Nez Perce tribal treaty rights and culture.

A Challenge Cost-Share Agreement between the Nez Perce Tribal Fisheries/Watershed Program and the Clearwater National Forest has been completed, signed by both parties, and used for work on fish passage improvements at Lower Eldorado Falls in 1997 (Clearwater National Forest and the Nez Perce Tribe, 1997), and is in the process of being extended throughout the year 2003 (5-year plan) that will continue the onward progress of Eldorado Falls fish passage improvements. A verbal agreement has already been made between the two parties concerning this matter, with a memorandum of agreement (MOA) to be established on February of 1998. This agreement discussed the relationship between the two government's with regards to watershed management with the Lolo Creek Watershed, as well as the entire Clearwater National Forest.

This proposed project will directly help other fisheries project. BPA has allotted \$1,500,000 to the Nez Perce Fisheries Program which is in the planning stages for the Nez Perce Tribal Hatchery (NPTH). The NPTH will incubate and



early rear fish in their facility and then release them into the natural environment to continue their freshwater rearing in Eldorado and Lolo Creeks, which are within the Lolo Creek Watershed. Lolo and Eldorado Creeks are important spring chinook production “treatment” streams for NPTH. In order for the production program to achieve success, habitat conditions in the stream need to be as beneficial as possible. The objectives of this proposal will work towards increasing fish and wildlife habitat for the Nez Perce Tribal Hatchery projects.

A total of \$30,668 has been allotted for the Eldorado Creek barrier removal project number 84-6, agreement number DE-A179-84BP-16535. The results of this did not allow for successful fish passage of anadromous fish. This project will provide a design, to complete what has already been established.

There has been a history of outplanting of anadromous fish from 1983 to 1995. This outplanting, plus the future outplants planned from the NPTH, will be unsuccessful in enlarging their populations, until the Lower Eldorado Falls is made passable. A history of the outplant in Eldorado Creek are listed below;

- 1983 - 625,000 Steelhead Fry
- 1985 - 121,284 Steelhead Smolts
- 1,150 Steelhead Adults
- 1986 - 205,362 Steelhead Smolts
- 155 Steelhead Adults
- 1987 - 119,090 Chinook Salmon Fry
- 1988 - 200,806 Steelhead Smolts
- 1989 - 209,950 Steelhead Smolts
- 109,480 Steelhead Smolts
- 501 Steelhead Adults
- 1990 - 199,700 Steelhead Smolts
- 256,883 Chinook Salmon Smolts
- 1991 - 201,847 Steelhead Smolts
- 199,456 Chinook Smolts
- 1992 - 183,000 Chinook Smolts
- 1995 - 50,000 Coho Fry

#### **d. Project history**

Bonneville Power Administration (BPA) and the Clearwater National Forest have been involved with Eldorado Creek fish passage improvements since 1984 (Vogelsong, Murphy, and Espinosa, 1985). In 1984, the Clearwater National Forest analyzed the barrier (project 84-31) and in 1985 modified the barrier (under project #84-6, agreement number DE-A179-84BP-16535, modifications number M001). The modifications were unsuccessful in their attempt to provide a clear passage for anadromous fish.

In 1997, the Nez Perce Tribe got involved with fish passage improvements at Lower Eldorado Falls. Ed Larson, Nez Perce Tribal Fisheries Production Manager, observed needed for further modifications to the passage way. The Watershed

Program of the Tribe, contracted John Orsborn (Professional Engineer) to evaluate, survey, and design a preliminary option for the falls barrier, under project number 9607700. Emmitt E. Taylor Jr., Nez Perce Tribal Fisheries/Watershed Civil Engineer, EIT, was directly involved with the work done by Mr. Orsborn.

**e. Methods.**

Objective 1 and the related tasks, as stated in section 4, will be carried out in conjunction with the Clearwater National Forest (CNF) and various consulting engineers, as needed.

The scope of work is to design a plan that will allow successful fish passage for anadromous fish through Lower Eldorado Falls. The design life expectancy will be no less than 25 years.

A preliminary design has been completed by John Orsborn (professional civil/hydraulic engineer). Emmitt E. Taylor Jr., Nez Perce Tribal (NPT) Fisheries/Watershed Program Civil Engineer, EIT, is going to design alternative options. Mr. Taylor will be the lead in the project and will use a number of sources in completing the objective, which will include, but not limited to the Clearwater National Forest and various consulting engineers. Mr. Taylor will use his background in Civil Engineering in the design process. Research is going to be completed on other fish passage design on their successes and failures, and the knowledge learned implemented into the design process. A challenge cost-share agreement with the CNF includes this project (CNF and NPT, 1997). Help and guidance in designing the fish passage improvements and pre-construction activities will be obtained by biologists and engineers of the CNF and various consulting engineers (included in section 1, under sub-contractors), as needed. Verbal agreements have been obtained from the CNF and the consulting engineers in assistance with the project. The tasks associated with this project are listed in section 4.

The results of this project will be a set of stamped (by professional engineer) design drawings that will allow for successful fish passage through Lower Eldorado Falls, while impacting the environment at the greatest minimum possible. All pre-construction activities are to be completed and all necessary permits obtained for construction.

There will be operation and maintenance (O&M) and monitoring and evaluation (M&E) associated with this project. The finished passage will be observed once a year for damage. What maintenance activities needed will be determined at that time. The NPT Fisheries Program plans to complete fish surveys on Eldorado Creek in the future. A close monitoring will be done on the amount of redds counted each year and how successful fish are in passing the barrier.

**f. Facilities and equipment.**

- **EQUIPMENT: Office Computer**  
**AMOUNT: 1**

**TO BE PURCHASED, RENTED, OR OWNED:** Owned

**USE:** The computer will be used for all AutoCAD designs, report writing, and data computations.

- **EQUIPMENT:** Survey Equipment

**AMOUNT:** 1

**TO BE PURCHASED, RENTED, OR OWNED:** Rented

**USE:** The listed equipment will be used to provide a more complete survey of the project area.

**g. References.**

Espinosa, Lee. 1991. Natural Propagation and Habitat Improvement Important to Idaho: Lolo Creek and Upper Lochsa.

Nez Perce Treaty. 1855.

Vogelsany, Murphy, and Espinosa. 1985. The Eldorado Creek Habitat Enhancement Plan.

## **Section 8. Relationships to other projects**

## **Section 9. Key personnel**

**NAME:** Ira Jones

**TITLE:** \* Clearwater Sub-basin Focus Coordinator (1 FTE)

\* Habitat/Watershed Manager, Nez Perce Tribe

**FTE/HOURS:** 1.0

**EDUCATION:**

INSTITUTION	LOCATION	ATTENDANCE	MAJOR	DEGREES
University of Montana	Missoula, MT	Sept. 73 - June 74	Wildlife	N/A

**CERTIFICATION:** N/A

**PROFESSIONAL ORGANIZATIONS:** N/A

**PREVIOUS EMPLOYMENT:**

March 3, 1997 to present, Clearwater Sub-basin Focus Program Coordinator for the Nez Perce Tribe, Lapwai, Idaho. **Duties:** Analyze programs, laws, policies related to watershed management. Facilitate development of criteria to identify critical fisheries habitat. Develop system to apply criteria to watershed for project development and administration. Prepare plan documents for watershed habitat

work coordination. Give educational presentations and workshops for watershed management and proposal development. Provide assistance to project proponents with proposal development, implementation, monitoring, and assessment.

May of 1996 to present, Habitat/Watershed Manager of the Nez Perce Tribe. Responsible for planning and implementation of the Early Action Watershed Projects for the Nez Perce Tribe.

6/25/1986 - 3/1/97, Tribal Government Program Manager, United States Forest Service, Region One.

12/14/80 - 6/25/86, Facilities Manager, United States Forest Service, Region One.

7/74 - 10/79, Fire Cache Work Leader, USDA Forest Service, Region One.

**RELEVANT JOB COMPLETIONS:** 1) Coordinated National, Multi-Regional, and Regional Civil Rights conferences. 2) Facilitated Treaty Rights workshops with host tribes and multi-government agencies. 3) Organized and conducted Tribal Relations Training primarily for management level from the U.S. Forest Service, Tribes, Bureau of Land Management, and the Bureau of Indian Affairs. 4) Introduced, implemented, and managed the Inter-Tribal Youth Practicums for careers in natural resources and leadership within the U.S. Forest Service Regions 1, 5, 9, and 10. 5) Developed an Intergovernmental Personnel Act (IPA) position to work with the Salish Kootnai college to teach environmental science courses and develop a four-year natural science curriculum at the college. This three-year position and the program developed into a four-year accredited degree program in the fall of 1996.

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**NAME:** Felix M. McGowan

**TITLE:** Habitat Biologist

**FTE/HOURS:** 1.0

**DUTIES OF PROJECT:** Co-coordinator for all projects, riparian revegetation supervisor, fence placement coordinator and liaison between Forest Service and Tribal work crews.

**QUALIFICATIONS:** Felix M. McGowan has a degree in Biology from Gonzaga University. He has worked for the Nez Perce Tribe for one year. Prior to coming to this job he worked in a college setting at North Idaho College.

**DEGREE:** Bachelors of Arts in Biology, Gonzaga University

**CURRENT RESPONSIBILITIES:** Determine budget and staffing needs, prepare project work plans and coordination of projects, work with interdisciplinary teams, help to develop land management plans, coordinate fish, wildlife and cultural habitat requirements, investigate potential projects, and help inventory and evaluate habitat conditions.

**PREVIOUS EMPLOYMENT:**

1997 - Present: Nez Perce Tribe

1997 - 1994: North Idaho College

1994 - 1988: McGowan Farms

**EXPERTISE:** Felix has a good base in the natural sciences. His work focuses on protection and restoration of riparian and cultural sites. These two areas require a knowledge of a variety of habitat types and how the different habitats interrelate with one another.

**PUBLICATIONS OR JOBS COMPLETED:** 1) Squaw Creek Road Obliteration, 2) Squaw Creek Stream Survey, 3) McComas Meadows Fencing Project, 4) Musselshell Meadows Fencing Project, 5) Johnson Creek/Cox Ranch Rehabilitation Review.

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**NAME:** Emmitt E. Taylor Jr.

**TITLE:** Civil Engineer-In-Training

**FTE:** 1.0

**DUTIES ON PROJECT:** Road obliteration field inspector; Assist in analyzing, designing, and construction of bank stabilization structures. Co-coordinator for all Lolo Creek Watershed Projects.

**QUALIFICATIONS:** Emmitt E. Taylor Jr. has a B.S. degree in Civil Engineering from Colorado State University. He has worked in several professional firms including, but not limited to, Colorado State University Transportation Program, Womer & Associates Engineering and Architecture Firm, and the Nez Perce Tribe.

**DEGREE:** Bachelors of Science in Civil Engineering - Colorado State University

**CERTIFICATION STATUS:** Civil Engineer-In-Training

**CURRENT EMPLOYER:** Nez Perce Tribal Fisheries/Watershed Management Program

**CURRENT RESPONSIBILITIES:** Assist in gathering, analyzing, and interpreting watershed data; represent program in various interdisciplinary teams; assist in surveying project areas; aid in assessing water resources/quality; knowledge of current computer software programs; design of civil engineering projects; supervise and field inspection of road obliteration; co-coordinate program projects.

**PREVIOUS EMPLOYMENT:**

1997 - Present: Nez Perce Tribal Fisheries/Watershed Program

1997 - 1995: Womer and Associates Engineering and Architecture Firm

1995 - 1993: Colorado State University Tribal Transportation Program

**EXPERTISE:** Emmitt E. Taylor Jr.'s background is in Civil Engineering with an emphasis in hydrology. Mr. Taylor's analysis, design, and construction work concentrates on stream rehabilitation, stream morphology, water quality, road obliteration, in-stream structures, and fish passage improvements.

**PUBLICATION OR JOB COMPLETIONS:** (1) Eldorado Fall Area Survey, (2) McComas Meadows Meadow Protection Project, (3) Squaw Creek Stream Survey and Analysis, (4) Colville Confederated Tribes HRD Building Site Development Design, and (5) Geiger Boulevard Environmental Analysis.

## **Section 10. Information/technology transfer**

**The Forest Service has a required obligation to provide research, transfer of technology, and technical assistance to Indian tribal governments (USDA, 1997). This obligation by the Forest Service will be used by the *Nez Perce Tribal Fisheries/Watershed Program* to aide in accomplishing the goals and objectives of our Program, NPPC Fish and Wildlife Program, and Spirit of the Salmon Anadromous Fish Restoration Plan of the Tribes. A relationship with the Clearwater National Forest has been established and has had a very positive impact on both organizations and is expected to continue in the future. This relationship has lead to several agreements, both verbal and written, for the completion of numerous projects within the Clearwater Sub-basin.**

**A verbal agreement (to be included in a memorandum of understanding at a later date) has been made with the Clearwater National Forest to assist Emmit E. Taylor Jr. (Civil Engr., EIT) in obtaining his professional engineering license. The Forest Service engineers will oversee Mr. Taylor's designs and the implementation of these designs. During the next 3 years he will seek qualifications to take the State of Idaho Professional Engineer License Exam.**